

A NEW SPECIES OF *HAPLUSIA*
(DIPTERA: CECIDOMYIIDAE: PORRICONDYLINEAE)
FROM SOUTHWESTERN PENNSYLVANIA

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Abstract.—The larva, pupa, and adults of a new species, *Haplusia funebris* Plakidas, from southwestern Pennsylvania, are described and illustrated. *Haplusia funebris* is compared to *H. rubra* (Felt) and *H. fusca* (Felt) in a key to the North American species.

Key Words: *Haplusia*, new species, Cecidomyiidae, Porricondylinae

The genus *Haplusia* Karsch (Diptera: Cecidomyiidae: Porricondylinae) is world-wide in distribution with 17 extant and 1 fossil species (Gagné 1978, 2004). Adults are dark brown to black with white tarsi and have 14 flagellomeres that lack circumfila. The larvae have a densely spiculate cuticle and a head capsule with apodemes joined posteriorly. The biology of three larvae, *H. brevipalpis* (Mamaev), *H. heteroptera* (Mamaev and Spunġis), and *H. palpata* (Mamaev) were first described by Spunġis (1985) in which they were found to inhabit decaying wood. Plakidas (1999) reported *H. rubra* (Felt) from crevices of rotting bark on ash or tulip poplar. Full grown larvae of both *H. rubra* and *H. funebris* overwintered full grown with adults emerging in May and June.

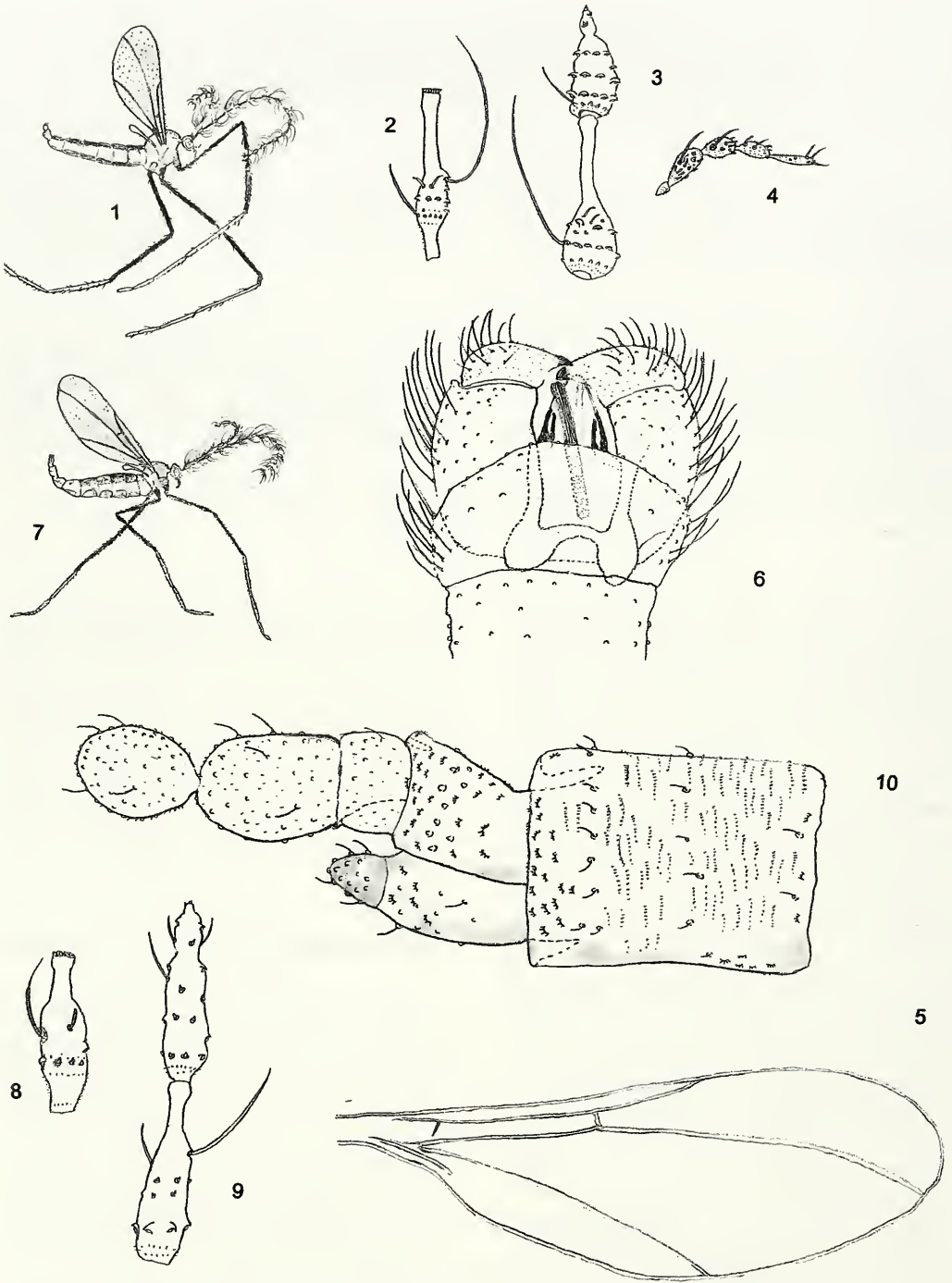
Here I describe a newly discovered *Haplusia* whose larvae were found living in bark of a fallen black cherry tree, *Prunus serotina* Ehrh., in advanced decay. The rotting bark was light brown in color, moist, and easily pulled open to reveal the hidden larvae, 15 collected in all. Three were cleared in KOH and slide

mounted in euparal, the remainder were cultured in plastic petri dishes moistened with paper towels. Four adults, one male and three females were reared. All were lightly cleared in KOH and slide mounted in euparal. Comparison of these adults and larvae with other known *Haplusia* from North America is presented in an accompanying key to species.

***Haplusia funebris* Plakidas, new species.**
(Figs. 1–13)

Adult.—Eye black, antenna slate gray with black setal whorls; thorax brown dorsally, yellow brown laterally; wings smoky black, without spots and fringed with black, setiform scales; coxae, trochanters, femora, tibiae, and first tarsomere black, the last four tarsomeres white; abdomen dorsally and ventrally slate gray except yellow brown laterally.

Male (Fig. 1): Length: 3.5 mm. *Head:* antenna with 14 flagellomeres that lack circumfila; first flagellomere (Fig. 2) with basal stem densely covered with microtrichia, the node with a basal whorl of long setae, microtrichia extending



Figs. 1-10. *Haplusia funebris*. 1, Male. 2, Male 1st flagellomere. 3, Male flagellomeres 13-14. 4, Male palpus. 5, Wing. 6, Male genitalia. 7, Female. 8, Female 1st flagellomere. 9, Female flagellomeres 13-14. 10, Female abdomen, segments 9-10.

only to whorl of longer setae at mid-length, neck bare, remaining flagellomeres (Fig. 3) without basal stem, microtrichia extending only to basal whorl of setae; palpus with palpiger + four segments, last segment equal in length to third, each segment covered with microtrichia and sparsely covered with setae. *Thorax*: Scutum with dorsocentral and dorsolateral rows of setae, lateral sclerites bare; wing (Fig. 5) 4 mm: Rs vein nearly perpendicular to R5; medial veins absent; Cu not forked, extending to wing margin; Cu1 absent; A1 prominent near base, remainder obsolete. Tarsal claws simple, empodia rudimentary. *Abdomen*: Tergites 1–7 and sternites 2–7 densely covered with microtrichia and sparsely covered with long setae; 8th and 9th segments lightly sclerotized, covered with microtrichia and sparsely covered with long setae. *Genitalia* (Fig. 6): Cerci convex apically; aedeagus sclerotized, as long as gonocoxites; parameres sclerotized laterally, joined ventrad of aedeagus; gonostyli densely covered with microtrichia, with long setae dorsally, the apical tooth comprised of a tuft of closely appressed bristles.

Female (Fig. 7): Length: 4 mm. *Head*: antenna with 14 flagellomeres, circumfila absent; first flagellomere (Fig. 8) with a short basal stem and rows of microtrichia confined mainly to stem and basal 3rd of node, neck bare; remaining flagellomeres (Fig. 9) lacking basal stem and microtrichia extending to basal whorl of setae. *Thorax*: Scutum with dorsocentral and dorsolateral rows of setae, lateral sclerites lacking setae; wing and tarsal claws as in male. *Abdomen*: First tergite with a single posterior row of setae, tergites 2–8 lightly sclerotized and sparsely covered with setae; sternites 2–7 lightly sclerotized and sparsely covered with setae; 9th segment (Fig. 10) membranous, protrusible, dorsum covered with rows of microtrichia, ventral surface sparsely covered with fanlike patches of

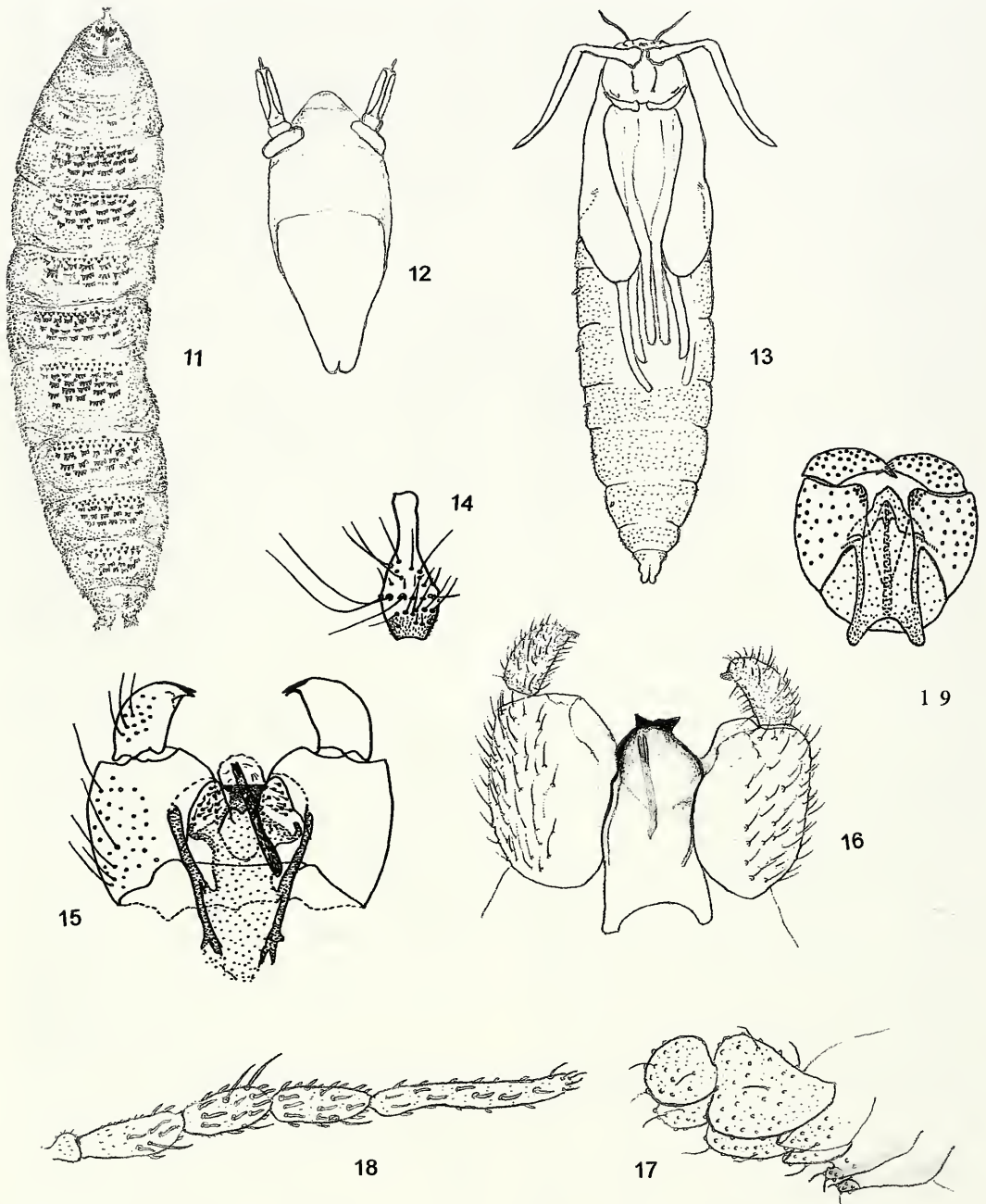
microtrichia; hypoproct bilobed and densely covered with short setae apically; cercus 2-segmented, first segment elongate to rectangular, the cuticle folded near base giving appearance of a third segment; second segment ovoid and much shorter than first (Fig. 10), densely covered with microtrichia and setae.

Larva (Fig 11).—Elongate, 4–5 mm in length; dusty white; head capsule (Fig. 12) elongate-ovoid with apodemes joined posteriorly and shorter than head; antenna about 4 times longer than wide, with an apical papilla; spatula tridentate, flanked on each side by 2 groups of 2 lateral papillae, each with a coniform seta. Entire lateral cuticle spiculate. Ventral surface of abdominal segments 1–8 with transverse fanlike rows of blunt spicules. Spiracles of 8th segment situated on posterolateral margin extending above body wall; 9th segment bilobed, the anus flanked by rounded platelets.

Pupa (Fig 13, illustrated from a female pupal skin).—Head: Face with 2 pair of papillae, 1 of each pair simple, the other setiform, situated anterior to clypeus; thoracic spiracles short, rounded at apex and elevated above body wall, with 1 simple and 1 setiform papilla situated posterior to each spiracle; abdominal cuticle covered with posteriorly directed macrospicules, except for 9th segment which is smooth and bilobed; abdominal spiracles situated on dorsolateral margins of segments 1–7 with 2 setiform papillae situated posterior to each spiracle.

Type material.—Holotype: Male, reared 27-V-2000, collected 5 km N Aspinwall, Allegheny Co. PA. Paratype: Female; reared 24-V-2000, 5 km N Aspinwall, Allegheny Co. PA. Paratype: Larva; same pertinent data. All type material deposited in the National Museum of Natural History, Smithsonian Institution, Washington D.C.

Etymology.—The specific name, *funnebris*, refers to the black color of the adults.



Figs. 11–19. 11–13, *Haplusia funebris*. 11, Larva, ventral. 12, Head capsule, dorsal. 13, Pupa, ventral. 14–15, *Haplusia fusca*. 14, Male 3rd flagellomere. 15, Male genitalia (from Parnell 1971). 16–18, *Haplusia rubra*. 16, Male genitalia with 10th segment removed. 17, Female cercus and hypoproct, lateral. 18, Palpus. 19, *Haplusia palpata* male genitalia, dorsal (from Spunġis 1985).

Discussion.—*Haplusia funebris* is easily differentiated from the other two North American species, *H. fusca* (Felt) and *H. rubra* (Felt), by genitalic differences. Both *H. fusca* (Fig. 15) and *H. rubra* (Fig. 16) have heavily pigmented parameres with toothlike apices, whereas *H. funebris* (Fig. 6) has parameres sclerotized basally and laterally and membranous apically. One Palearctic species, *H. palpata* (Mamaev) (Fig 19), is generally similar to *H. funebris* but differs with respect to the sclerotization of the parameres and morphology of the gonocoxal apodemes. In *H. palpata* (Fig. 19), the parameres are heavily sclerotized apically and the gonocoxal apodemes narrow basally with a wide transverse bridge. Conversely, *Haplusia funebris* (Fig. 6) has membranous parameres and the gonocoxal apodemes are broadly rounded basally with a narrow transverse bridge.

THE FOLLOWING KEY TO NORTH AMERICAN SPECIES IS MODIFIED FROM PARNELL (1971).

- 1. Male 3rd flagellomere with stem shorter than node (Fig. 14), parameres sclerotized apically and appearing toothlike (Fig. 15); female unknown *fusca*
- Male 3rd flagellomere with stem longer than node, parameres either sclerotized or membranous apically 2
- 2. Male genitalia with parameres sclerotized apically and appearing toothlike (Fig 16); basal segment of female cercus pyriform (Fig 17); palpus with 4th segment twice as long as 3rd (Fig 18) *rubra*
- Male genitalia with parameres sclerotized laterally, fused apically and not appearing toothlike (Fig. 6); basal segment of female

cercus cylindrical (Fig 10); palpus with 4th segment nearly same length as 3rd (Fig 4) *funebris*

ACKNOWLEDGMENTS

I thank Dr. R.J. Gagné, Research Entomologist, Emeritus, Systematic Entomology Laboratory, USDA for reviewing and making helpful comments on the manuscript. I also thank Dr. V. Spunġis, Faculty of the Department of Zoology and Animal Ecology, University of Latvia, for his review and for providing the illustration for *H. palpata*, (Fig. 19). I thank the Entomological Society Of America for permission to use figs. 8 and 9 (*Haplusia fusca*) from Parnell (1971).

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